FIG. 1A

```
Ground Squirrel   mylfhlclvf acvpcptvqa sklclgwlwd

                1
HBc AYW           mdidpykefg atvellsflp sdffpsvrdl ldtasalyre
HBc ADW           mdidpykefg atvellsflp sdffpsvrdl ldtasalyre
HBc ADW2          mdidpykefg atvellsflp sdffpsvrdl ldtasalyre
HBc ADYW          mdidpykefg atvellsflp sdffpsvrdl ldtaaalyrd
Woodchuck         mdidpykefg ssyqllnflp ldffpdlnal vdtatalyee
Ground Squirrel   mdidpykefg ssyqllnflp ldffpdlnal vdtaaalyee

               41
HBc AYW           alespehcsp hhtalrqail cwgelmtlat wvgvnledpa
HBc ADW           alespehcsp hhtalrqail cwgelmtlat wvgnnlqdpa
HBc ADW2          alespehcsp hhtalrqail cwgelmtlat wvgnnledpa
HBc ADYW          alespehcsp hhtalrqail cwgdlmtlat wvgtnledpa
Woodchuck         eltgrehcsp hhtairqalv cwdeltklia wmssnitseq
Ground Squirrel   eltgrehcsp hhtairqalv cweeltrlit wmsentteev
```

Title: STABILIZED IMMUNOGENIC HBc CHIMER PARTICLES
(Lyons et al.)
Filing Date: 12/10/03
Attorney Docket No.: ICC-136.0 US (4564/88881)
Sheet 1 of 11
FIG. 1A

FIG.1B

```
                  81
HBc AYW             srdlvvsyvn tnmglkfrql lwfhiscltf gretvieylv
HBc ADW             srdlvvnyvn tnmglkirql lwfhiscltf gretvleylv
HBc ADW2            srdlvvnyvn tnvglkirql lwfhiscltf gretvleylv
HBc ADYW            srdlvvsyvn tnvglkfrql lwfhiscltf gretvleylv
Woodchuck           vrtiivnhvn dtwglkvrqs lwfhlscltf gqhtvqeflv
Ground Squirrel     rriivdhvnn twglkvrqtl wfhlscltfg qhtvqeflvs

                 121
HBc AYW             sfgvwirtpp ayrppnapil stlpettvvr rrgrsprrrt
HBc ADW             sfgvwirtpp ayrppnapil stlpettvvr rrdrgrsprr
HBc ADW2            sfgvwirtpp ayrppnapil stlpettvvr rrdrgrsprr
HBc ADYW            sfgvwirtpp ayrppnapil stlpettvvr rrgrsprrrt
Woodchuck           sfgvwirtpa pyrppnapil stlpehtvir rrggarasrs
Ground Squirrel     fgvwirtpap yrppnapils tlpehtvirr rggsraarsp

                 161
HBc AYW             psprrrrsqs prrrrsqsre sqc
HBc ADW             rtpsprrrrs qsprrrrsqs resqc
HBc ADW2            rtpsprrrps qsprrrrsqs resqc
HBc ADYW            psprrrrsqs prrrrsqsre sqc
Woodchuck           prrrtpsprr rrsqsprrrr sqc
Ground Squirrel     rrrtpsprrr rsqsprrrrs qspasnc
```

FIG. 2

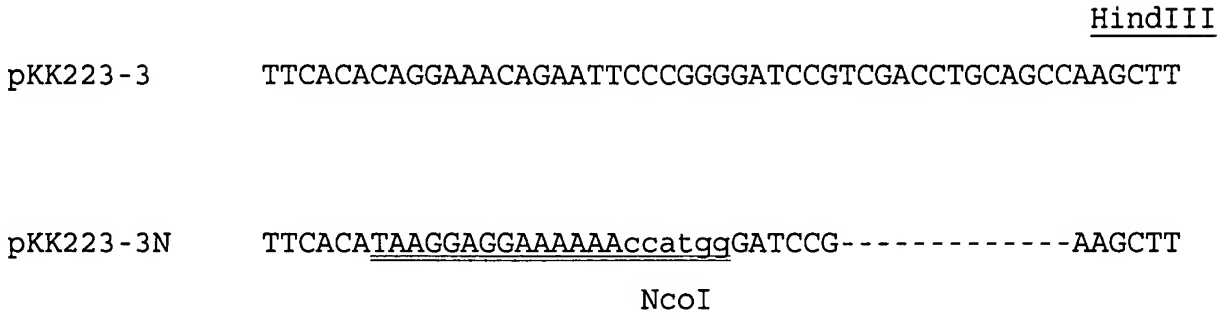

HindIII
pKK223-3
TTCACACAGGAAACAGAATTCCCGGGGATCCGTCGACCTGCAGCCAAGCTT
pKK223-3N
TTCACATAAGGAGGAAAAAAccatggGATCCG----------AAGCTT
NcoI

FIG. 3A

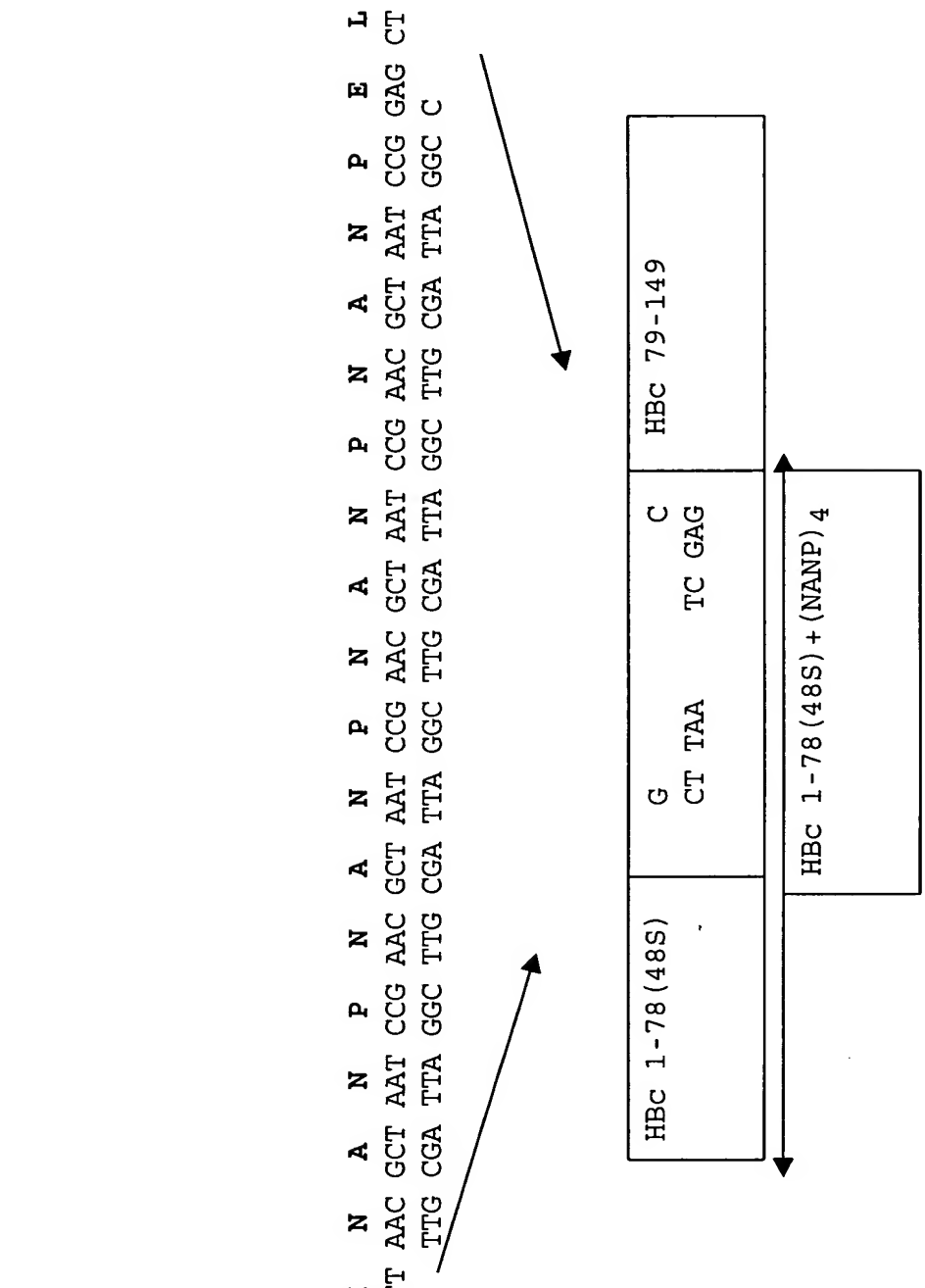

Cloning Step 1
I N A N P N A N P N A N P N A N P E L
A ATT AAC GCT AAT CCG AAC GCT AAT CCG AAC GCT AAT CCG AAC GCT AAT CCG GAG CT
TTG CGA TTA GGC TTG CGA TTA GGC TTG CGA TTA GGC TTG CGA TTA GGC C
HBc 1-78(48S)
G
CT TAA
C
TC GAG
HBc 79-149
HBc 1-78(48S)+(NANP)4

FIG. 3B

Cloning Step 2

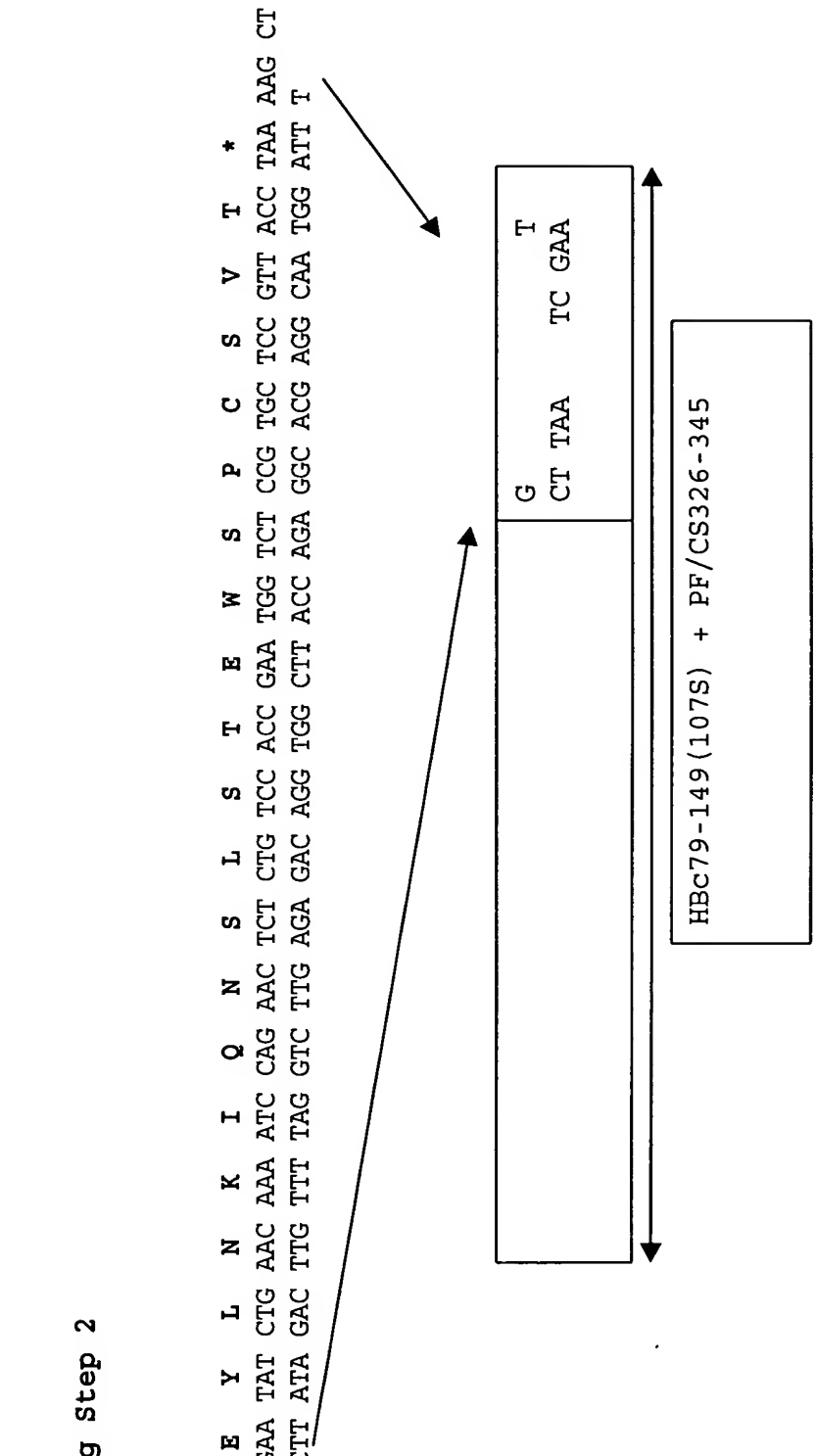


FIG. 3C

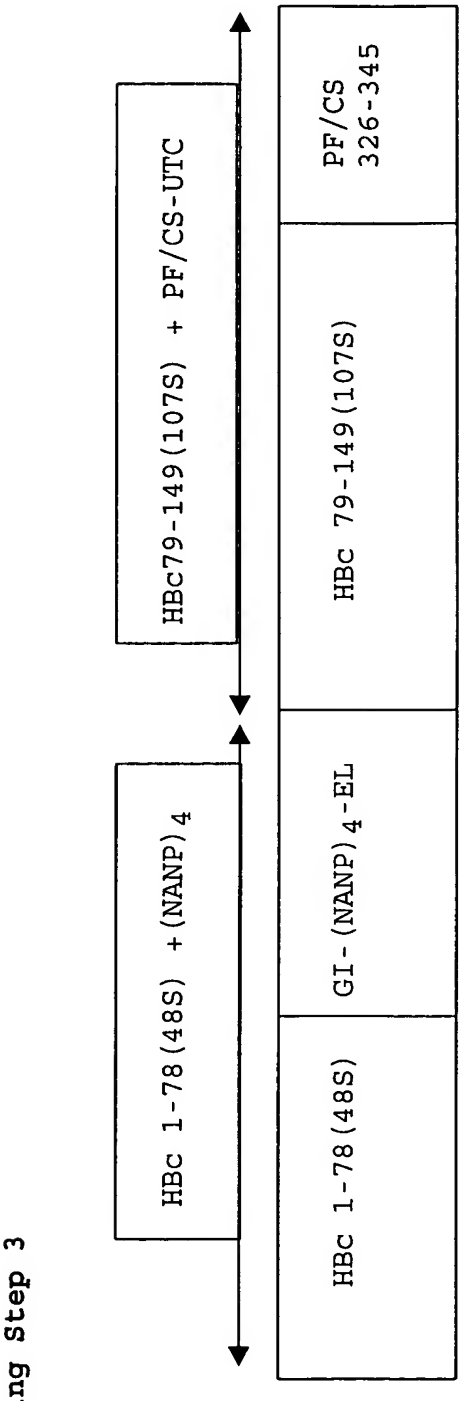

Cloning Step 3
HBc 1-78(48S) +(NANP)4
HBc79-149(107S) + PF/CS-UTC
HBc 1-78(48S)
GI-(NANP)4-EL
HBc 79-149(107S)
PF/CS
326-345

FIG. 4A

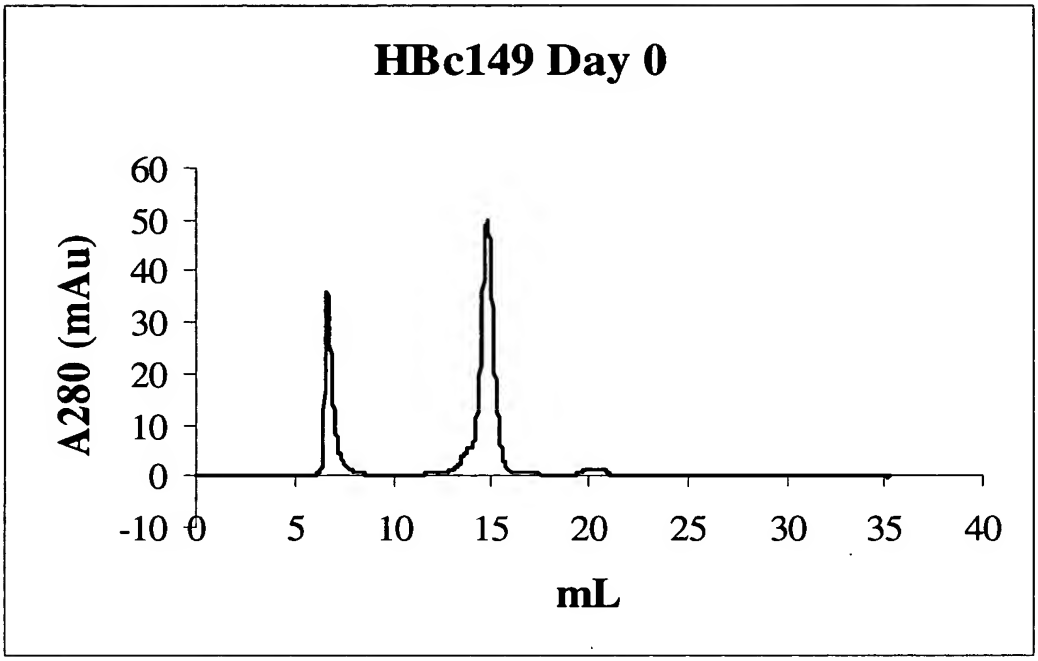

HBc149 Day 0
A280 (mAu)
60
50
40
30
20
10
0
-10
0
5
10
15
20
25
30
35
40
mL

FIG. 4B

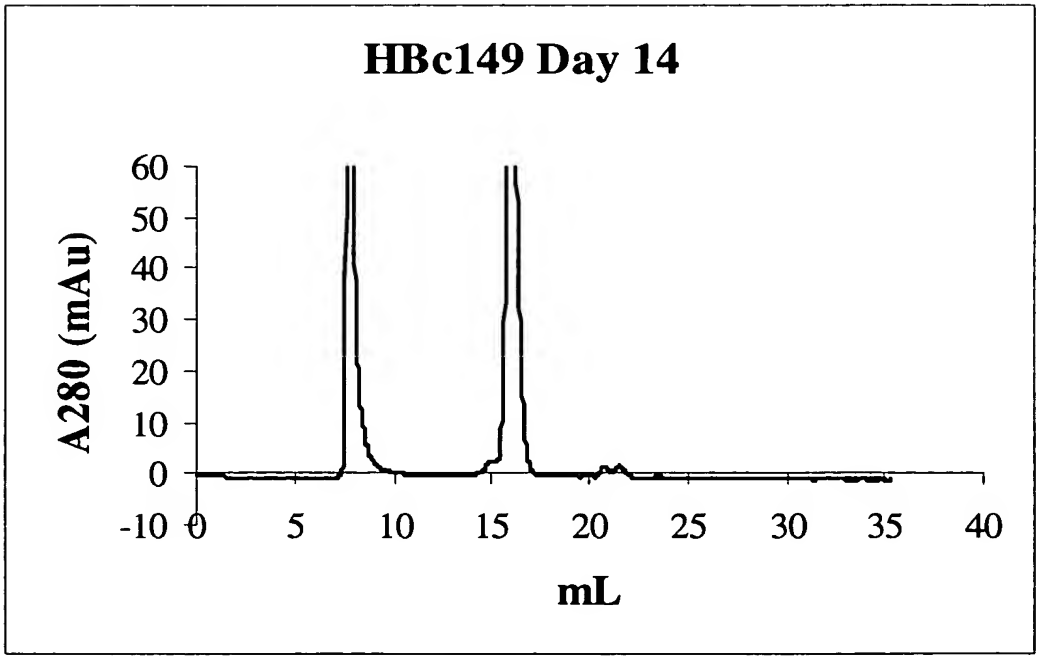

HBc149 Day 14
A280 (mAu)
60
50
40
30
20
10
0
-10
0
5
10
15
20
25
30
35
40
mL

FIG. 4C

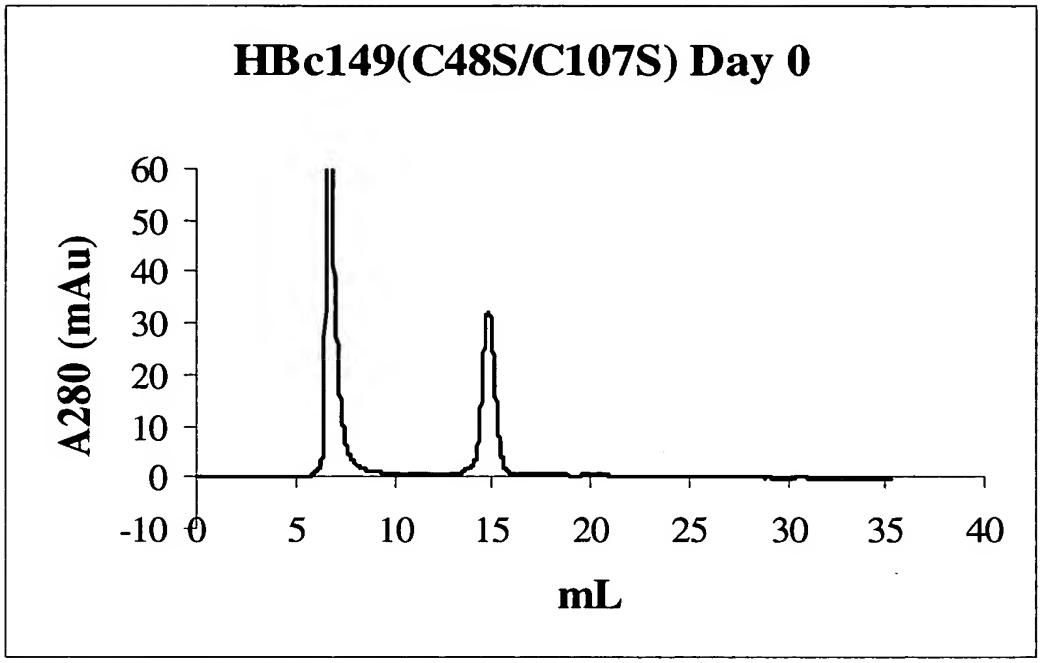

HBc149(C48S/C107S) Day 0
A280 (mAu)
60
50
40
30
20
10
0
-10
0
5
10
15
20
25
30
35
40
mL

FIG. 4D

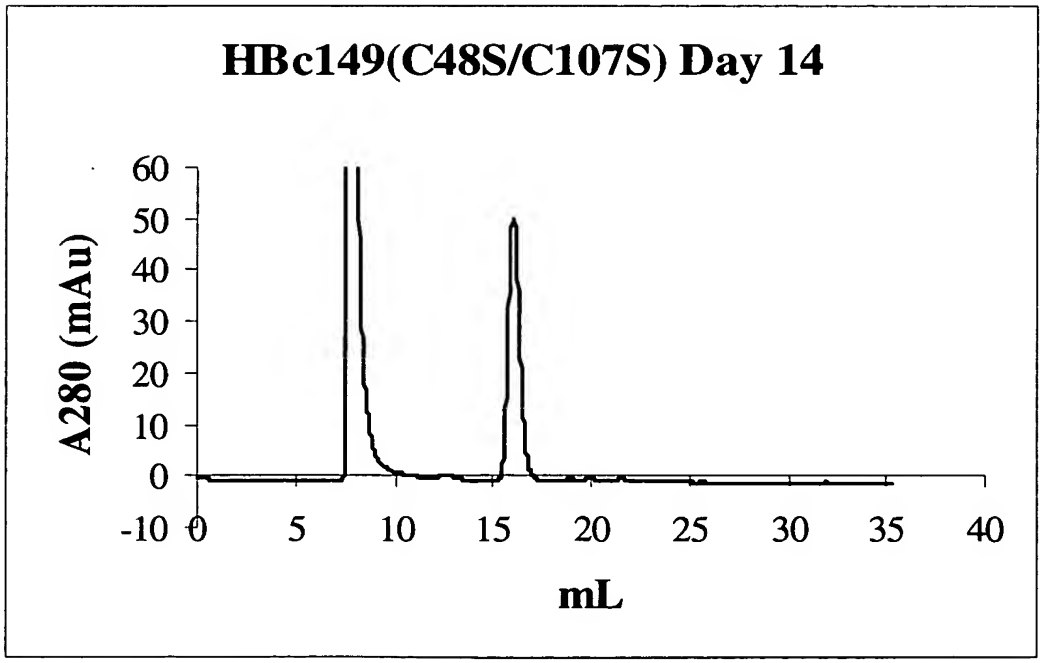

HBc149(C48S/C107S) Day 14
A280 (mAu)
60
50
40
30
20
10
0
-10
0
5
10
15
20
25
30
35
40
mL

FIG. 4E

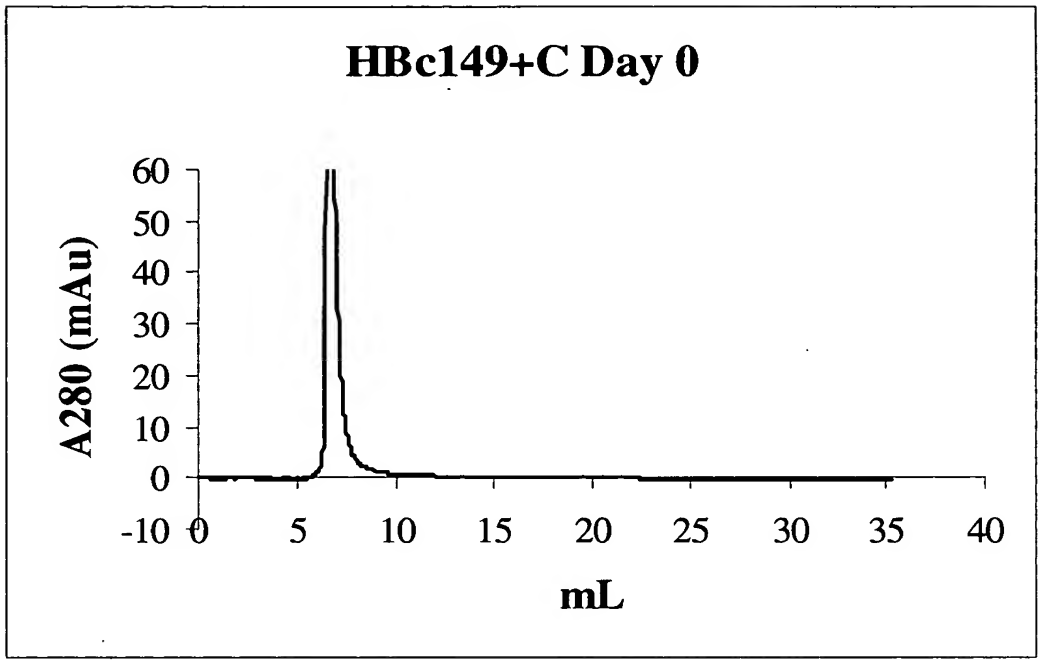

HBc149+C Day 0
A280 (mAu)
60
50
40
30
20
10
0
-10
0
5
10
15
20
25
30
35
40
mL

FIG. 4F

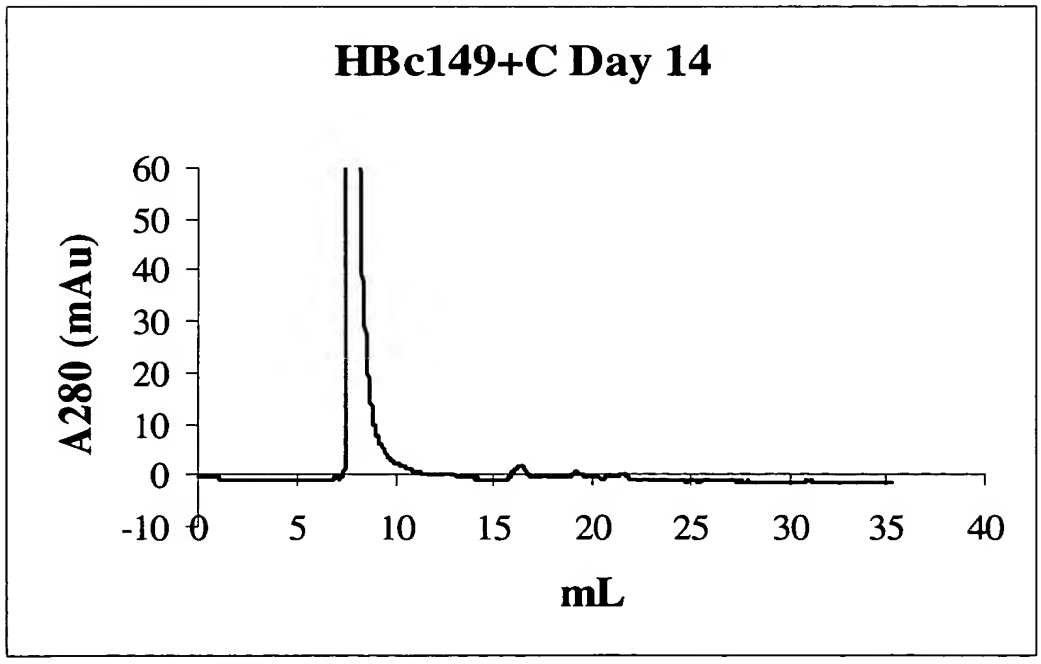

HBc149+C Day 14
A280 (mAu)
60
50
40
30
20
10
0
-10
0
5
10
15
20
25
30
35
40
mL

FIG. 4G

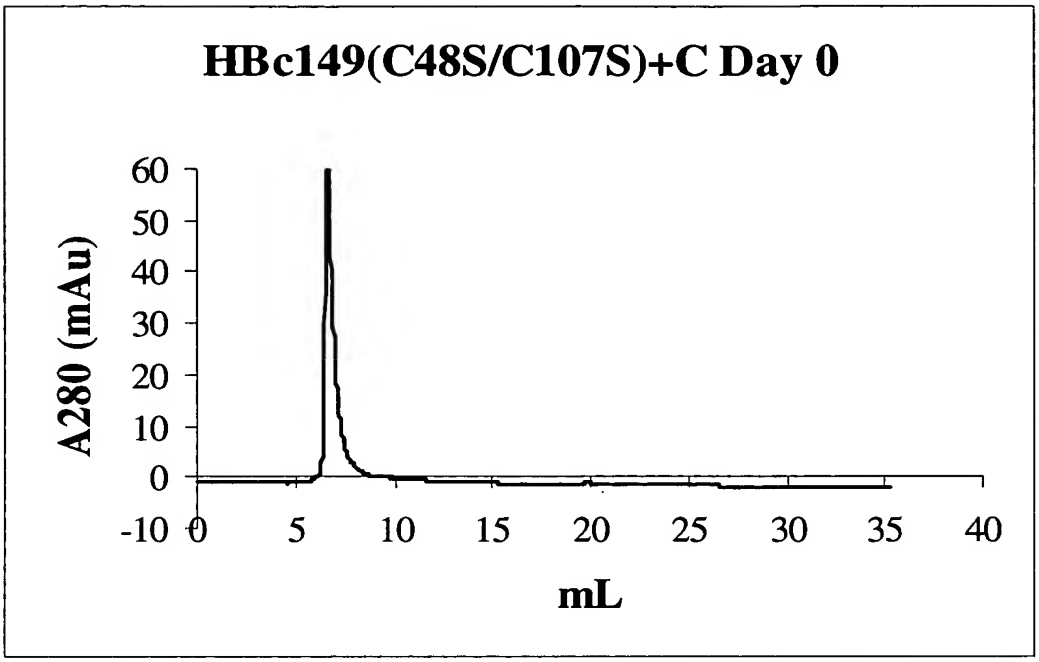

HBc149(C48S/C107S)+C Day 0
A280 (mAu)
60
50
40
30
20
10
0
-10
0
5
10
15
20
25
30
35
40
mL

FIG. 4H

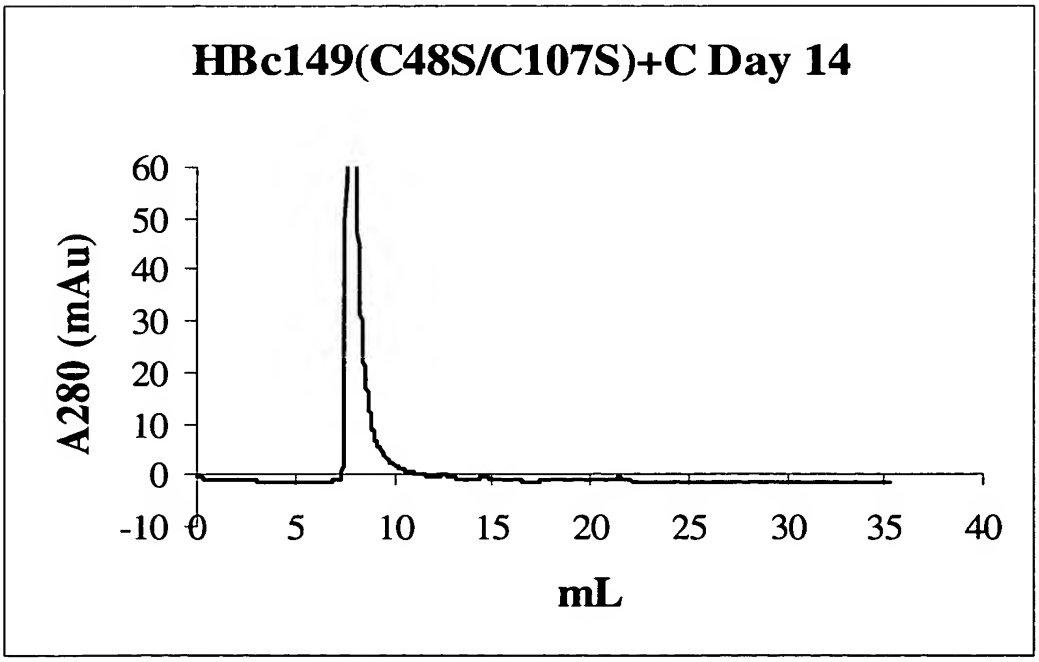
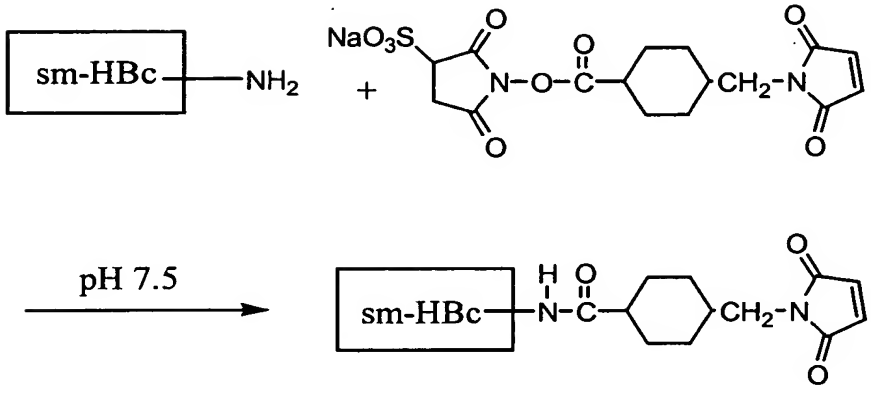
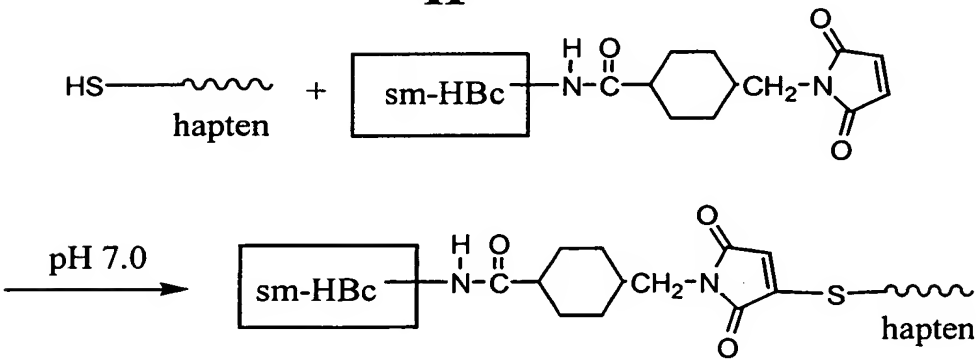

HBc149(C48S/C107S)+C Day 14
A280 (mAu)
60
50
40
30
20
10
0
-10
0
5
10
15
20
25
30
35
40
mL

FIG. 5

Scheme 1

I



II